BRIEF DESCRIPTION OF THE FIGURES

Figure 1 schematically shows one embodiment for linking the plurality of antigenic peptides.

Figures 2A through 2C are flow charts schematically showing the amplification steps that may be used to construct a recombinant polynucleotide of this invention. (SEQ ID NOS: 7-12).

Figure 3 shows two separate embodiments of this invention. Figure 3A shows the polynucleotides encoding gp209 antigenic peptide which are separated by a polynucleotide encoding 3 alanines. Figure 3B is the sequence of the 3' UTR of an α-globin gene that may be inserted into the construct to enhance stability of the transcribed mRNA. (SEQ ID NOS: 13-14).

Figure 4 is the sequence of a 9 copy recombinant polynucleotide. (SEQ ID NOS: 15-32).

Figures 5A and 5B are graphs that show that cells infected with the recombinant polynucleotides of this invention are more effective presenters of antigen to CTL as measured by the CTL assay. In Figure 2B, MDA 231 cells transfected with vectors comprising a plurality of polypeptides encoding the antigenic peptide gp100 209 enhances cell lysis as assayed by CTL. An incremental increase in the percent lysis was observed in proportion to the number of copies of the epitopes.

MODE(S) FOR CARRYING OUT THE INVENTION

Throughout this disclosure, various publications, patents and published patent specifications are referenced by an identifying citation. The disclosures of these publications, patents and published patent specifications are hereby incorporated by reference into the present disclosure to more fully describe the state of the art to which this invention pertains.

Definitions

The practice of the present invention will employ, unless otherwise indicated,

324-332; and the vesicular stomatitis nucleotide protein, amino acid residues 52-59. Peptides representing epitopes displayed by the malarial parasite *Plasmodium faciparum* have been described. U.S. Patent No. 5,609,872.

An example of a self-tissue antigen recognized in autoimmune disorders is the acetylcholine receptor (AChR) which is recognized in myasthenia gravis. The T lymphocyte response in these patients may be directed to additional epitopes on the AChR. Although the majority of T cell recognition sites are on the subunit, T cells also recognize epitopes in the other subunits. Indeed, T cells from patients have been shown to respond to more than 30 different AChR-derived peptides. Examples of AChR epitopes are the following (SEQ ID NOS: 1-6):

HM1:	Y N L K W N Y N L K W N Y N L K W N	(SEQ ID NO:1)
HM2:	P D D Y G G P D D Y G G P D D Y G G	(SEQ ID NO:2)
HM3:	V K K I H I V K K I H I V K K I H I	(SEQ ID NO:3)
HM4:	K W N P D D K W N P D D K W N P D D Y	(SEQ ID NO:4)
HM5:	Y G G V K K Y G G V K K Y G G V K K	(SEQ ID NO:5)
HM6:	W N P D D Y G G V K W N P D D Y G G V K	(SEQ ID NO:6)

Another class of self-antigens for which antigenic epitopes have been described is human chorionic gonadotropin (hCG) beta subunit. U.S. Patent No. 5,733,553. These epitopes find utility in contraceptive methods.

The list of peptides is exemplary only and is not intended to limit the Class I or Class II peptides that can be modified for use in the methods of the present invention can be employed. Class I and Class II peptides that can be used with the present invention can also be determined empirically in accordance with techniques known in the art. For example, the peptides that are displayed by a variety of different class I molecules can be defined for a given pathogen-related antigen by infecting somatic cells of given class I HLA types with the pathogen of interest. The peptides that bind to the class I molecules after normal intracellular processing are then eluted from the target cell surface and subjected to sequence analysis in accordance with known techniques. Alternatively, overlapping peptides from a given pathogen-related protein can be synthesized and analyzed for their ability to bind to